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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,722	08/07/2000	Derek L. Eager	960296.97362	3602

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EXAMINER

GEREZGIHER, YEMANE M

ART UNIT	PAPER NUMBER
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2144

DATE MAILED: 01/30/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/633,722

Applicant(s)

EAGER ET AL.

Examiner

Yemane M Gerezgiher

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/07/2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) 18 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This application has been examined. Claims 1-19 are pending.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed limitations in independent claims 1, 12 and 14 including all aspects of the invention must be shown or the feature(s) canceled from the claim(s). For example, Fig. 6 merely shows a plurality of *regional servers/storages* connected to a *central server*. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Allowable Subject Matter

3. Claims 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1 and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nussbaumer et al (Entitled: "*Networking requirements for interactive video on demand*").

As per claims 1, 12, 13, and 14, Nussbaumer disclosed IVOD (Interactive Video on Demand) scenarios demonstrating a cost function associated with storing and transmitting video programs to plurality of clients demanding the interactive video service, by caching small (fractional) parts of the data (program/file) at the head end or regional or local server or near by storage (see page 784, right column, section VI. Stream Sharing and Fig. 10 on page 785, left column) interpreted as *Splitting the program into segments* where the small part of the program cached at the local storage was interpreted as a *prefix* or first part of the program and the remaining part of the program as a *suffix* to indicated the second portion of the program. Nussbaumer disclosed the method/system of caching part of programs at a local storage and partially at a remote server based on cost function (*costs associated with storing the prefix at the at least one regional storage location and costs of transmitting the suffix from the remote storage location*) as claimed in claims 10, 11 and 13, to compare possible and optimal alternatives, mainly program caching and stream sharing determining optimal routing topology by sharing and caching approaches by looking at bandwidth (transmitting cost of the video program) against storing (caching the video program in a memory) achieving optimal solution to serve requests received from the plurality of clients(see Abstract) by caching programs to reduce total bandwidth and by sharing video streams when appropriate. See page 779, right column, lines 1-8 and page 781, left column, section B. Comparison Criterion-Cost Functions through page 782, left column. Nussbaumer disclosed caching (*storing the prefix in the at least one regional storage location and storing the suffix in the remote storage location*) part of a video

program and storing the fractional video program at different regional locations of the network while the remaining part of the program was stored at the central/remote server. See page 780, Fig. 1 (Network Model), page 780, right column, section III.

Problem definition. *Transmitting the prefix to the plurality of consumers from the corresponding at least one regional storage location; and transmitting the suffix to the plurality of consumers from the remote storage location/server was disclosed by* Nussbaumer, "program caching introduces more flexibility, and is more reasonable than server replication as a technique to reduce total bandwidth ... caching a fraction of the programs ... reducing the amount of bandwidth at a cost of increasing the amount of storage required to store the fractional programs ... where caching the fractional program obviously taking place for the most popular programs. Programs those were relatively unlikely to be popular remaining stored in a central server". See page 783, left column, section V. Program caching and Fig. 5 Illustration of program caching on page 783.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nussbaumer et al (Entitled: *"Networking requirements for interactive video on*

demand") in view of D. L. Eager et al, (Entitled: "*Dynamic skyscraper broadcasts for video-on-demand*") hereinafter referred to as Eager and further in view of applicant's admitted art.

With respect to the rejection applied above, Nussbaumer disclosed the invention as claimed. However, Nussbaumer did not teach *transmitting media program in accordance with a skyscraper technique*.

One of ordinary skill in the art would have been motivated to look for alternative methods at the time the invention was made to transmit media files to clients by using skyscraper broadcasting. In these arts Eager disclosed skyscraper and dynamic skyscraper broadcasting techniques. See Abstract.

Moreover, the inventive entity has admitted that the use of skyscraper broadcasting was known in the art at the time the invention was made. See Specification Fig. 3 labeled with a legend "PRIOR ART" and specification page 4, line 30 through page 5, line 22.

Thus it would have been obvious to one of ordinary skill in the art, at the time the applicant's invention was made to take the admitted teachings or the teachings of Eager related to skyscraper broadcasting and have modified the teachings of Nussbaumer related to interactive video on-demand, because "skyscraping broadcasting provides significantly superior performance over previously known approaches". See Eager Abstract, Section 2.1 (Static Skyscraper Broadcasts) and Section 2.2 (Dynamic Scheduling of Skyscraper Broadcasts).

7. Claim 2-5, 7, 9, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nussbaumer et al (Entitled: *"Networking requirements for interactive video on demand"*) as applied to claims 1, 12 and 14 above and further In view of Birk et al (U.S. Patent Number 6,502,139).

With respect to the claim rejection applied above, Nussbaumer substantially disclosed the invention as claimed. Nussbaumer disclosed (claims 4 and 5) *wherein the prefix and suffix are chosen so as to reduce and average down the combined storage and bandwidth costs associated with transmitting an entire given media program to the plurality of clients*. See col. 5 section B. Comparison Criterion—cost functions and col.12, section VI. (Stream Sharing). However, Nussbaumer did not explicitly discuss transmitting the partitioned segments continuously.

An ordinary artisan working with Nussbaumer's system related to optimal interactive video on-demand might have been aware that Nussbaumer's method/system might have inherently disclosed some sort of splitting mechanism since Nussbaumer taught storing/caching "fractional part of the program in a local servers or location" or would have motivated to look for teachings that may have allowed splitting a program into plurality of segments. In theses arts Birk disclosed a method/system for optimization of VOD (video on-demand) data transmission by splitting video program in to segments (see Abstract). Birk disclosed a server transmitting a video on demand program to plurality of users by scheduling the transmission of the program and involving a step of partitioning the program in to plurality of sequential segments and transmitting them continuously where (claim 2, 3 and 7). See Title, col. 3, lines 18-22

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and col. 3, lines 45-56. Birk disclosed the media program transmitted via a satellite links. See col. 9, lines 20-24.

Thus, it would have been obvious to one of ordinary skill in the art, at the time the applicant's invention was made to take the teachings of Birk related to splitting of a video on-demand program and have modified the teachings of Nussbaumer related to interactive video on-demand, so that a server could repeatedly transmit a program that is partitioned in to a plurality of segments and wherein a client receives and records the segments and displays the program as intended. See col. 3, lines 34-51.

8. Claims 15 -17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nussbaumer et al (Entitled: *"Networking requirements for interactive video on demand"*) as applied to claim 14 above and further In view of Wahl (U.S. Patent Number 5,898,456).

Nussbaumer substantially disclosed the invention as claimed in claim. However, did not teach *detecting when the prefix of the requested program is empty, the suffix comprising the entire media program or when suffix is empty the prefix comprising the entire program.*

An artisan who was aware of Nussbaumer invention would have been motivated to look for teachings that may have allowed the determination step to redirect users request based on where it may be stored by checking if the partitioned program was stored at a local location or if the program was stored at a remote station. Among these arts sited, Wahl disclosed a network communication system comprising plurality of

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clients sending requests for video program and where therein a remote server having stored video programs and a plurality of regional/ local servers or storages providing service to the clients. Wahl disclosed when the local server was unable meaning did not contain the program requested by a client, the central remote server serving the program requested and when the remote server was unable to serve a request received a local server serving the client as claimed in claims 15 and 16 and where the programs stored locally or remotely are determined based on popularity of the movies (claim 17). See Figures 2-6.

Thus, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to take the teachings of Wahl related to a network communication system having a control facility and have modified the teachings of Nussbaumer related to interactive video on-demand, because *"if one of the subordinate servers is unable to provide a service requested by one of the user terminals, the respective superordinate server or one of the other subordinate servers is in a position to comply with the request from the user terminal via a switched connection between the requesting user terminal and the respective superordinate server or the other subordinate server"*. See col.1, lines 60-67.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

- a. Leighton, F. Thomson et al (U.S. Patent Number 6,665,726) Entitled:
Method and system for fault tolerant media streaming over the Internet.

- b. Chaddha, Navin (U.S. Patent Number 6,647,425) Entitled: *System and method for selecting the transmission bandwidth of a data stream sent to a client based on personal attributes of the client's user*, disclosed transmission of video content by receiving partial data content from a global or central server and partial data from a local storage/server.
- c. Gunaseelan, Lakshminarayanan et al (U.S. Patent Number 6,601,136) Entitled: *Media server system and process having device independent near-online storage support*, disclosed partitioning of media files into data packets which are then delivered to the client system across the network connection.
- d. Murphy, Greg (U.S. Patent Number 6,564,380) Entitled: *System and method for sending live video on the Internet*.
- e. Hoang, Khoi (U.S. Patent Number 6,557,030) Entitled: *Systems and methods for providing video-on-demand services for broadcasting systems*, disclosed dividing a data file into a number of data blocks.
- f. Li, Victor O. K. et al (U.S. Patent Number 6,543,053) Entitled: *Interactive video-on-demand system*, disclosed video on-demand method/system by implementing split and merge protocol and where therein remote and local servers are used in distributing media files.
- g. Kermode, Roger G. et al (U.S. Patent Number 6,018,359) Entitled: *System and method for multicast video-on-demand delivery system*
- h. DeBey, Henry C (U.S. Patent Number 5,701,582) Entitled: *Method and apparatus for efficient transmissions of programs*, disclosed a video-on-demand

system dividing video files into sequentially organized data segments for transmission and playback.

i. Clement, David J (U.S. Patent Number 5,684,963) Entitled: *System and method for distributing video from a plurality of video providers*, disclosed distribution of video programs using plurality of resource pools.

FOREIGN PATENT DOCUMENTS

j. WENDORF, JAMES W (EP 609936 A2) Entitled: *Identification of a data stream transmitted as a sequence of packets*, disclosed splitting data file in to segments where the first part of the segments (prefix) containing service identification number block number and segment number as well as segment length information followed by data contents.


NON-PATENT DOCUMENTS

k. Hua, K et al, "Skyscraper Broadcasting: A New Broadcasting Scheme for Metropolitan Video-on-Demand Systems", Proc. of ACM SIGCOMM, Sept 1997.

10. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Yemane Gerezgiher whose telephone number is 703-305-4874. The examiner can normally be reached on Monday- Friday from 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful. The examiner's supervisor, Harvey Jack B, can be reached at (703) 305-9705.

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JACK B. HARVEY
SUPERVISORY PATENT EXAMINER